MULTIMEDIA UNIVERSITY

STUDENT ID NO | | | | | | | | | | |

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 3, 2015/2016

DCS5128 – SYSTEM ANALYSIS AND DESIGN

(For Diploma students only)

31 MAY 2016
2.30 p.m - 4.30 p.m
(2 Hours)

INSTRUCTIONS TO STUDENT

1. This question paper consists of **10 pages** with **3 sections**.
2. Answer **ALL** questions.
3. For **Section A** and **B**, shade your answers on the **OMR sheet** provided.
4. For **Section C**, write your answers in the **Answer Booklet** provided.

SECTION A: MULTIPLE CHOICE QUESTIONS (20 MARKS)

1. What does SDLC stand for?
   A. System Development Life Cycle.
   B. System Development Live Cycle.
   C. System and Development Life Cycles.
   D. System and Development of Live Cycles.

2. Which of the following computer software is designed to support organisational functions or processes?
   A. Application Software.
   B. Analysis Software.
   C. Design Software.
   D. System Software.

3. _____ is a person in an organisation who has the primary responsibility for systems analysis and design.
   A. End user
   B. Internal auditor
   C. Systems analyst
   D. Systems manager

4. Which of the following are **TRUE** about the traditional Waterfall SDLC?
   i. Limited user involvement.
   ii. Not very flexible and adaptive.
   iii. Feedback ignored, milestones lock in design specs even when conditions change.
   iv. Too much focus on milestone deadlines of SDLC phases to the detriment of sound development practices.

   A. iii, iv
   B. i, ii, iii
   C. ii, iii, iv
   D. i, ii, iii, iv

5. Which of the following are **TRUE** about CASE tool?
   i. Analysis tools help to prototype how systems will look and feel.
   ii. Built around a central repository for system descriptions and specifications.
   iii. Helps programmers and analysts do their jobs more efficiently and effectively.
   iv. Software tools that provide automated support for some portion of the systems development process.

   A. i, ii, iii
   B. i, iii, iv
   C. ii, iii, iv
   D. i, ii, iii, iv

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6. The practice of turning over responsibility of some to all of an organisation's information systems applications and operations to an outside firm is referred to as:
   A. realignment
   B. downsizing
   C. outsourcing
   D. time sharing

7. Off-the-shelf software systems that cannot be modified to meet the specific needs of a particular organisation are sometimes called:
   A. turnkey systems
   B. standard systems
   C. custom software systems
   D. in-house developed systems

8. Which of the following are main reasons to hire a company to run your applications at your site on your computers?
   i. System development is a non-core activity for the organisation.
   ii. Make up for lack of in-house knowledge.
   iii. Increase process efficiencies.
   iv. Free up internal resources.

   A. ii, iv
   B. i, iii, iv
   C. ii, iii, iv
   D. i, ii, iii, iv

9. Which of the following are **TRUE** about open-source software?
   i. Freely available in Internet.
   ii. Can be freely installed to any computer devices in only certain duration of time.
   iii. It's developed by a community of interested people instead of by employees of a particular company.
   iv. Performs the same function as commercial software.

   A. i, ii, iii
   B. i, iii, iv
   C. ii, iii, iv
   D. i, ii, iii, iv

10. Which of the following companies are ranked as the top software companies?
    i. IBM
    ii. Amazon
    iii. Facebook
    iv. Microsoft

    A. i, ii, iv
    B. i, ii, iii
    C. ii, iii, iv
    D. i, ii, iii, iv

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11. Which of the following is the **CORRECT** sequence of project management process?
    i. Initiation
    ii. Planning
    iii. Closedown
    iv. Execution

    A. i, ii, iii, iv
    B. i, ii, iv, iii
    C. ii, i, iv, iii
    D. ii, i, iii, iv

12. What would be the estimated time (ET) for completion using program evaluation review technique if the time estimates for report design are as follows:
    Optimistic = 3 weeks; Pessimistic = 9 weeks; Realistic = 6 weeks?
    A. 3 weeks
    B. 5 weeks
    C. 6 weeks
    D. 18 weeks

13. Which of the following statements is **TRUE** about critical path?
    A. A sequence of activities whose order must be performed in parallel.
    B. A sequence of activities whose order and durations directly affect the completion date of a project.
    C. A sequence of activities whose order and durations indirectly affect the completion date of a project.
    D. A sequence of activities whose duration cannot last more than 40 percent of the time allotted to the project.

14. _____ is a graphical representation of a project that shows each task as a horizontal bar whose length is proportional to its time for completion.
    A. Diagram
    B. Bar Chart
    C. Gantt chart
    D. Network diagram

15. _____ is the amount of time that an activity can be delayed without delaying the project.
    A. Slack time
    B. Delay time
    C. Expected time
    D. Estimated time

16. Identification and assessment of all possible systems development projects that an organisation unit can undertake is conducted during _____.
    A. project identification and selection
    B. project initiation and planning
    C. analysis phase
    D. design phase

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17. The following are the groups which make decision for information systems identification and selection **EXCEPT:**
    A. Development group
    B. Steering committee
    C. Top management
    D. Analyst group

18. Which of the following characteristics is associated with the Top Management selection method?
    A. Greater strategic focus.
    B. Greater organisational change.
    C. Less concern on cost-benefit analysis.
    D. Fewer users, management layers, and business functions.

19. Which of the following are the **CORRECT** steps for identifying and selecting IS development project?
    A. Identifying potential development projects, classifying and ranking IS development projects and selecting IS development projects.
    B. Classifying and ranking IS development projects, identifying potential development projects, and selecting IS development projects.
    C. Ranking and classifying IS development project, identifying potential development projects, s and selecting IS development projects.
    D. Identifying potential development projects, classifying the IS development, selecting IS development projects and make a decision.

20. Which of the following is an advantage of the bottom-up planning approach?
    A. A broader perspective can be achieved.
    B. IS plans can be created faster and are less costly to develop than using the top-down approach.
    C. Planners may gain the understanding necessary to implement information systems across the entire business.
    D. Planners will have sufficient management acceptance of the role of information systems in helping them achieve business objectives.

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SECTION B: TRUE/FALSE (20 MARKS)

*Instruction: Please shade **A** for **True** statements and **B** for **False** statements on the **OMR sheet** provided.*

21. Economic feasibility is a process of identifying the financial benefits and costs associated with a development project.
22. An example of an intangible benefit is improvement of management planning and control.
23. Using a discount rate of 11%, a RM10,000 benefit received 5 years from now has a present value of RM5,934.51.
24. New hardware and software purchases is one of the examples of recurring cost.
25. The justification for an information system, presented in terms of the tangible and intangible economic benefits and costs, and the technical and organisational feasibility of the proposed system, best describes Baseline Project Plan (BPP).
26. Recursive relationship is a relationship between the instances of one entity type.
27. Data flow diagram consists of four symbols that represent process, data store, source and data flow.
28. Joint Application Design (JAD) is a traditional method for determining system requirements.
29. As a general guideline, you should prepare an agenda with approximate time limits for different sections of the interview.
30. A decision table can get quite complex, and may include unnecessary or irrelevant conditions or actions.
31. Each column in a relation corresponds to an attribute of that relation.
32. The primary deliverable from logical database design is a list of alternative design strategies.
33. Given the relation EMPLOYEE (*Emp_Id, Emp_Name, Dept_Id, Emp_Email*); attribute *Dept_Id* is a foreign key.
34. Highlighting methods may be used by the form designer to draw users' attention to keywords, commands, high-priority messages and data that have changed or gone outside normal operating ranges.
35. Data entry displays should be consistently formatted across applications to speed data entry and reduce errors.

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36. Training plan is not one of the deliverables and outcomes from coding, testing and installation processes.
37. The key advantage of a direct installation is that it limits potential damage and potential cost by limiting the effects to a single site.
38. Vendors may possibly automate their support services through online support forums in order to cut support costs.
39. Website maintenance involves checking for broken external links.
40. Without quality documentation, maintenance efforts can increase exponentially.

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SECTION C: 3 STRUCTURED QUESTIONS (60 MARKS)

Instruction: Write ALL your answer in the answer sheet provided.

QUESTION 1 [25 MARKS]

a) Match the following word to the correct statement. [4 marks]

eXtreme Programming	*Enterprise Resource Planning*	*Object-oriented Analysis and Design*	*Application Software*
Logical Design	*Beta Testing*	*Maintenance*	*Cloud Computing*
Daily checking	*Analysis*	*Implementation*	*Design*
CASE	*Planning*	*Alpha Testing*	*Outsourcing*
Unit testing	*Maintainability*	*Physical Design*	*Introduction*
Request for Proposal	*Configuration management*	*Open Source Software*	*Desk checking*
System testing	*Request Form*	*Inspection*	*System Analysis*

i) _____ : An information system is systematically repaired and improved.

ii) _____ : An organisation's total information system needs are identified, analysed, prioritised, and arranged.

iii) _____ : System requirements are studied and structured

iv) _____ : The provision of computing resources, including applications, over the Internet, so customers do not have to invest in the computing infrastructure needed to run and maintain the resources.

v) _____ : A document provided to vendors to ask them to propose hardware and system software that will meet the requirements of a new system.

vi) _____ : A testing technique in which participants examine program code for predictable language-specific errors.

vii) _____ : A testing technique in which the program code is sequentially executed manually by the reviewer.

viii) _____ : The ease which software can be understood, corrected, adapted and enhanced.

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b) ***Table 1*** below represents an IS project set of activities, its expected completion time and preceding activities.

Activity	Preceding Activity	Expected Completion Time (ET)
A	-	3
B	A	4
C	B	3
D	B	10
E	D	8
F	D	4
G	D	6
H	C, E, F, G	8
I	H	5
J	H	5
K	I	4
L	J	2
M	K, L	4

Table 1

i) Draw a network diagram for the IS project shown in *Table 1*. [4 marks]

ii) For each activity, calculate its earliest completion time (T_E) and latest completion time (T_L). Label T_E and T_L on the network diagram. [13 marks]

iii) Calculate the slack time (*ST*) for each activity. [2 marks]

iv) List the activities on the critical path (*CP*). Shade critical path in the network diagram. [2 marks]

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QUESTION 2 [20 MARKS]

a) These are the basic requirement for computerised Florist Ordering System:

- Customer enters personal information to *register* through system. The information are stored in Customer_Record. Customer will get a confirmation upon registration.
- Customer can *login* to the system by key in username and password.
- Customer can place the *order* and the record will be stored in Customer_Order.
- The system then automatically *generates a delivery order* based on Customer_Record. The list can be viewed by the Delivery person who will be processing the delivery items.
- System will *generate the weekly sales* based on data from Customer_Record and Customer_Order. The report will be stored in separated data storage called Sales_Record data.

Based on requirements above:-

i) Draw a *Data Flow Diagram (Level 0)* for Florist Ordering System by showing general processes, data stores, data flows, and sources/sinks.

[10 Marks]

b) Briefly explain about one-time cost and recurring cost. Give **ONE (1)** example for each cost. [4 Marks]

c) Assume monetary benefits of an information system at RM 80,000 per year, a discount rate of 12% and 4 year time horizon. Calculate:

i) Net Present Value (NPV) of all benefit. [4 Marks]

ii) Return on investment (ROI) if NPV of all cost = RM 280,406. [2 Marks]

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QUESTION 3 [15 MARKS]

a) What does normalisation mean? [2 marks]

b) Given is the DRINK table:

Drink Code	Drink Name	Quantity Sold
B10	Cappuccino	80
B11	Latte	85
B12	Orange Juice	50
B13	Apple Juice	45
B14	Coke	90
B15	100 Plus	110
B16	Root Beer	60

i) Identify the primary key. [1 mark]
ii) What is the purpose of a primary key? [1 mark]

c) John is a system analyst who is responsible to build an initial prototype of the reports that is required by an accounting firm. To gather the initial requirements, he needs to find the answers to some fundamental questions. List out **TWO (2)** fundamental questions that must be answered for him to successfully build the prototype. [2 marks]

d) Provide **TWO (2)** advantages from using colour in enhancing the usability of a system. [2 marks]

e) Benjamin is frustrated with his financial reporting system that displays messages such as ***"ERROR 56 OPENING FILE"***.
i) Identify the type of system feedback based on the message. [1 mark]
ii) Explain the reason for Benjamin's frustration. [1 mark]
iii) If you're the developer of the system, how can you improve the situation? [1 mark]

f) List down the **TWO (2)** types of documentation. [2 marks]

g) Faith's department has recently installed a new inventory system. Suggest **TWO (2)** types of training methods that can be employed to train Faith and her colleagues to use the new system. [2 marks]

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